# Memorandum

*To:* *Danial Peabody*

*From:* *Scott Kirchner, CHMM*

*Date:* *15 October 2018*

*Subject:* *Working Draft Summary of Area 1 Split Sample Evaluation*

CDM Smith was tasked to accept and analyze split samples for Aroclor analysis by EPA Method 8082A. The samples were collected during the pre-design sampling event conducted by Wood Environment & Infrastructure Solutions, Inc. (Wood) on behalf of Georgia Pacific (GP) at the Area1 OU-5 Allied Paper, Inc., Portage Creek Kalamazoo River Superfund Site (the site), performed between 19 June through 27 June 2018.

CDM Smith accepted split aliquots of 23 environmental soil samples, one duplicate and one sample for matrix spike and matrix spike duplicate analyses. All samples were shipped under a single chain of custody to Integrated Analytical Labs (IAL) located at 273 Franklin Road, Randolph, NJ 07869. CDM Smith also submitted three certified reference material (CRM) samples under separate chain of custody to be analyzed along with the environment samples. A summary of the samples submitted to LAI is provided in the attached data validation report.

## Summary of Split Sample Finding

As a general rule of thumb a relative percent difference (RPD) of less than 50 between soil sample split results is considered acceptable. The RPDs of the individual Aroclors and total Aroclor results reported by each laboratory are all less than 50, Table 1. While these results are encouraging the results of the split samples (MDEQ) tend to trend higher than those of GP. Under a normal distribution scenario the results should be more evenly dispersed around a one to one line as noted in *Section 1.3* and *Figure 8* of the attached *Test for Differences in Split and Paired Samples* report. As indicated in this report the total Aroclor concentrations from the 2017 and 2018 pre-design investigation (PDI) samples collected by Wood in the formerly impounded floodplains of OU5/Area 1 were unexpectedly lower than total Aroclor concentrations in samples collected from this same area in 2008, 2001 and 1993/1994 by USEPA, MDEQ and Georgia-Pacific.

Additionally, the majority of the split sample surrogate recoveries and the CRM recoveries tended to be on the low end of the acceptable range. This lead us to believe that the results from the Aroclor analysis are generally biased low. Due to this MDEQ has elected to submit several samples for analysis by EPA method 1668 *Chlorinated Biphenyl Congener in Water, Soil, Sediment, Biosolids,*

*and Tissue by HRGC/HRMS, EPA-820-R-10-005*. These samples are currently under analysis and the findings will be amended to this report.

## Analytical Methodology

EPA Method 8082A is a gas chromatography method that uses comparison to a standard cure and Aroclor pattern recognition to quantify and identify Aroclors from a 30 gram soil subsample. Surrogates are added to each sample prior to extraction as a means to evaluate extraction and analytical efficiency. IAL used methylene chloride as an extraction solvent and extracted the samples via ultrasonic extraction technique.

cc: Dr. Keegan Roberts